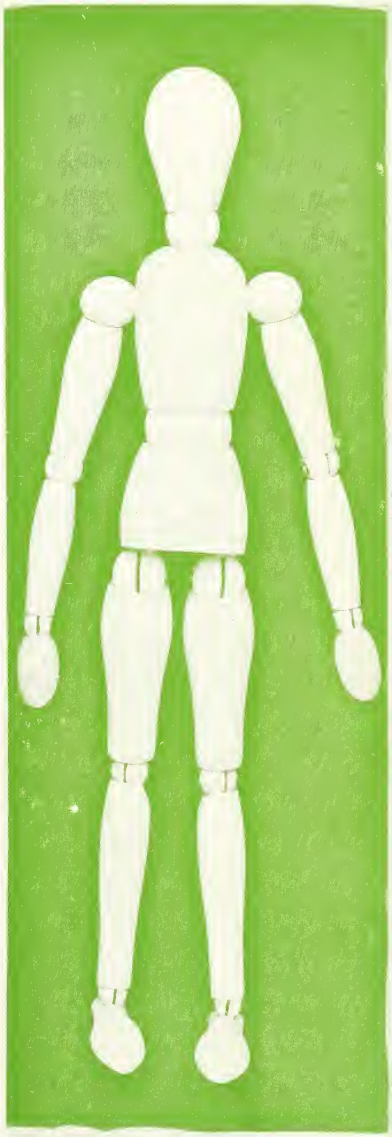
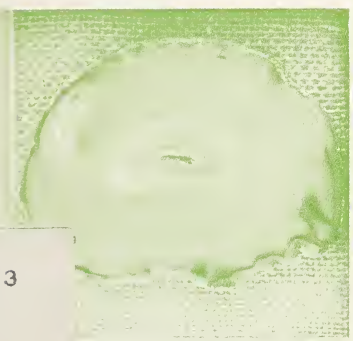
Activities for Exploring Science

GREEN BOOK





Activities for Exploring Science

GREEN BOOK

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ACTIVITY 1 *(Textbook page 11)*

How can you find and grow some bacteria?

You will need: 3 widemouthed, metal jar lids; potato; clear plastic food wrap; pan

- Remove any paper lining and rubber from the lids.
- Boil the lids in water for 5 minutes.
- Peel the potato. Slice it into pieces 1 cm thick.
- Cook the potato slices in water for about 5 minutes.
- Using a fork, arrange the potato slices on the lids as shown in the picture.
- Cover 1 lid with plastic wrap right away.
- Leave the potato slices in the other 2 lids uncovered so that bacteria from the air will fall on the potato slices.
- After about 3 hours, cover each lid with wrap. Be sure the wrap does not touch the potato slices.
- Put the 3 lids with potato slices in a warm, dark place.
- Look at the potato slices after 24 hours.

1. Did you get any bacteria to grow in the first lid?

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2. Did you get any bacteria to grow in the other 2 lids?

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3. What do the colonies of bacteria look like?

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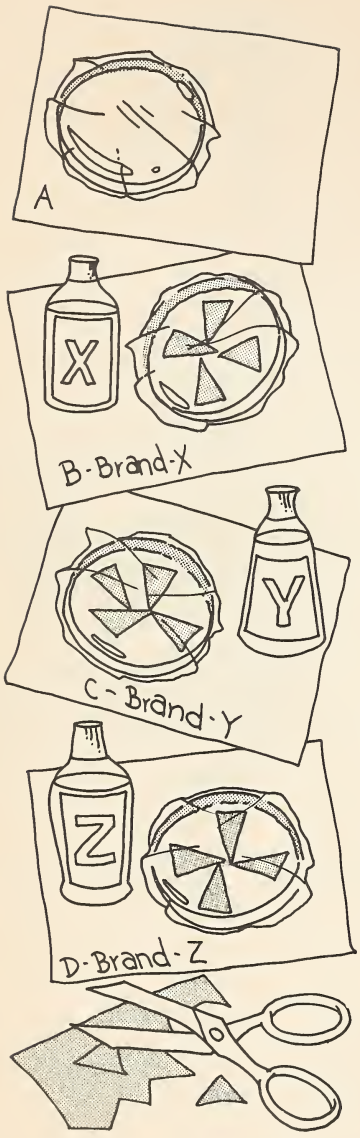
4. How do the colonies look after 48 hours?

5. How do the colonies look after 72 hours?

6. Why do you think they look this way after 72 hours?

● When you have finished looking at your bacteria, throw the lids, potatoes, and wrap into the garbage.

7. Why do you think you should do this?



ACTIVITY 2 *(Textbook page 13)*

How can you stop bacteria from growing?

You will need: 4 widemouthed, metal jar lids; clear plastic food wrap; 1 package of plain gelatin; 1 bouillon cube; 1 tablespoon of sour milk; 3 brands of antiseptic such as mouthwash; small mixing bowl; paper towel

- Remove any paper lining and rubber from the lids.
- Boil the lids in water for 5 minutes.
- Cut 12 narrow triangles from the paper towel.
- Mark the lids *A, B, C,* and *D.*
- Stir the gelatin, bouillon, and a cup of boiling water in the mixing bowl. Wait until all has dissolved.
- Pour in ½ cup of cold water. When the mixture has cooled but has not set, stir in the sour milk. The sour milk has bacteria you will need to work with.
- Pour some of the mixture into each of the lids.
- Wait 15 minutes or until the mixture has set. Cover lid *A* with wrap.
- Dip 4 of the paper triangles into one of the antiseptics. Arrange the triangles in lid *B* as shown. Mark down which antiseptic was used in lid *B.* Cover it with wrap.
- Do the same thing with the other 2 lids, except use a different antiseptic in each one.
- Put the lids in a warm, dark place for 3 days.

1. Why do you think you should put the lids in a warm, dark place?

---

2. What happened in the lid that had no antiseptic?

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3. What happened in the lids that had antiseptic?

4. Which antiseptic was best in keeping bacteria from growing?

5. How can you tell?

● Be sure to throw away the lids and everything in them.

ACTIVITY 3 *(Textbook page 18)*

How can you raise protozoans?

You will need: jar of rainwater or distilled water, dried grass or weeds, hand lens, eyedropper

- Place the dried grass or weeds into the jar of rainwater. Let the jar stand for 3 or 4 days.
- Hold the jar up to the sunlight.

1. Do you see any signs of life in the jar? If so, what are the living things doing?

- Using the eyedropper, put some of the water with moving things into a glass dish. Look at it with the hand lens.

2. Do you think there are any protozoans there? What makes you think so?

---

3. Where else might you find protozoans?

ACTIVITY 4 *(Textbook page 25)*

How can you grow bread mold?

You will need: 3 jars with screw tops, 2 paper towels, piece of bread (with no preservatives)

- Cut the bread into 3 pieces.
- Leave them uncovered for about 2 hours.
- Put 1 piece of bread in the first jar. Close the jar. Put it in a warm, dark place.
- Moisten the 2 paper towels. Fold each of the paper towels.
- Put 1 in each of the other jars.
- Put 1 piece of bread on top of each of the towels.
- Screw the tops on. Put 1 jar in a warm, dark place.
- Put the other jar in the sunlight. Wait for 3 or 4 days.

1. Do you see any fuzzy mold growing on any of the pieces of bread? (If not, wait a day or so longer.) What colour is the mold?

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2. Which jar has the best mold growth? Why?

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- Try growing molds on other things and under other conditions.

ACTIVITY 5 *(Textbook page 32)*

What kind of soil environment do earthworms like?

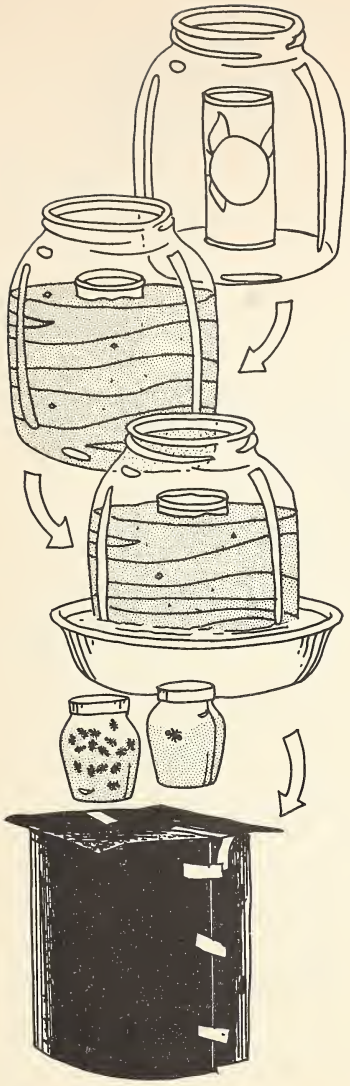
You will need: 3 earthworms, different kinds of soil (clay, sandy soil, black dirt), pan, heavy tinfoil

- Divide the pan into 3 equal parts using the tinfoil as shown.
- Put a different kind of soil in each part. Make a sign for each part as pictured.
- Sprinkle the same amount of water on each part. Sprinkle just enough water to moisten the soil.
- Place an earthworm in each part. Wait a day.

1. What did the earthworms do?

2. Which soil environment do the earthworms like best?

3. Why do you think this is so?



ACTIVITY 6 *(Textbook page 37)*

How do ants live?

You will need: large, widemouthed glass jar; tall, narrow tin can; sandy soil; flat pan of water; black paper; ants from an anthill; 2 small jars with lids; white paper

- Place the empty can in the centre of the large jar.
- Fill in the space between the can and the jar with soil, as shown. Fill the can with water so the ants won't get into the can.
- Set the jar in a pan of water. This will keep the ants from escaping.
- Collect the ants in a small jar by laying the jar on its side by an ant nest in a field or yard. A little sugar water in the jar might help draw them into the jar. Gather about 50 ants! Close the jar tightly.
- Dig deeply into the soil to try to find a queen ant, an ant larger than the others.
- Place the soil on white paper. Although the colony lasts longer with a queen, don't worry if you can't find one. The ants will still be fun to watch.
- Place the queen ant and some of the soil into the other small jar. Close the jar.
- Add some soil from the ant nest to the top of the soil you prepared in the large jar. Add the ants, putting the queen in last of all.
- Add food for the ants (bread crumbs, sugar water).
- Wrap the jar with black paper. Wait a few days before you look at the ants. Take the paper off when you want to watch the ants. Put the paper back on when you're not watching.

What things do you notice about the ant colony?

ACTIVITY 7 *(Textbook page 42)*

How do spiders live?

You will need: 1 small glass jar, window screening to cover the top of the jar, 1 sprig of leaves, 1 spider, insects for the spider's food (such as flies and mosquitoes), moist cotton

- Place the branch in the jar.
- Add the moist cotton.
- Put the spider in the jar and cover the top of the jar with the screening. Be sure to keep the cotton moist.
- Add a small, live insect twice a week.
- Watch the spider every day.

1. Did the spider spin a web? If so, how long did it take?

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2. What else did you notice that spiders do?

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3. What kind of insect did the spider catch more easily?

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ACTIVITY 8 *(Textbook page 56)*

What kinds of tissues can you find in a chicken leg?

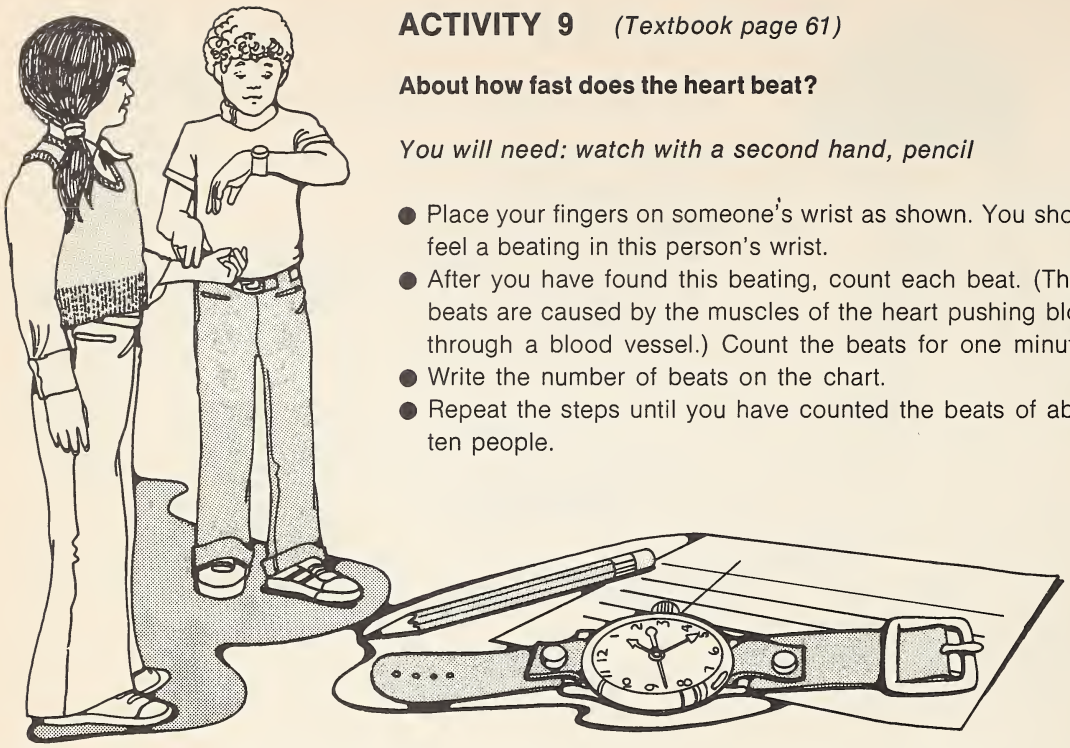
You will need: fresh, uncooked chicken leg; scissors; tweezers; waxed paper

- Place the chicken leg on the paper.
- With the scissors and tweezers, cut open and examine the chicken leg.

- Record your answers to the following questions in the proper space in the chart below.

1. What kinds of tissues did you find in the chicken leg?
2. What did they look like?

Kind of Tissue	Description of Tissue



ACTIVITY 9 *(Textbook page 61)*

About how fast does the heart beat?

You will need: watch with a second hand, pencil

- Place your fingers on someone's wrist as shown. You should feel a beating in this person's wrist.
- After you have found this beating, count each beat. (These beats are caused by the muscles of the heart pushing blood through a blood vessel.) Count the beats for one minute.
- Write the number of beats on the chart.
- Repeat the steps until you have counted the beats of about ten people.

Name	Beats	Name	Beats

Did everyone's heart beat the same? If not, why not?

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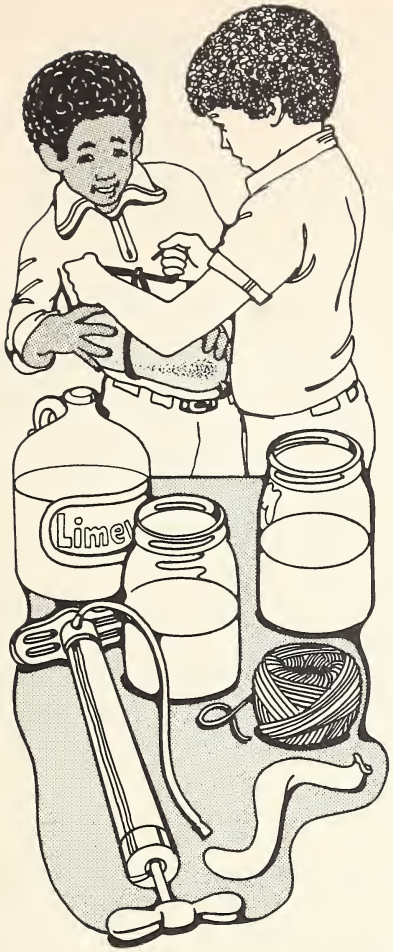


ACTIVITY 10 *(Textbook page 67)*

How can you find out if the air you breathe in is different from the air you breathe out?

You will need: limewater (from a drugstore), 2 widemouthed jars, 2 balloons, string, air pump such as bicycle-tire pump or ball pump

- Pour limewater into the jars until they are half full.
- Fill a balloon with air from the pump.
- When the balloon is filled with air, wrap the string around it as shown.
- Mark the string so that you know how big the balloon is.
- Put the opening of the balloon into the limewater in one jar. Slowly let the air out of the balloon into the water.

1. What happened to the water?

- Fill the other balloon with air from your lungs.
- Use the string to make sure that this balloon is the same size as the first balloon.
- Put the opening of the second balloon into the limewater in the other jar. Slowly let the air out of this balloon.

2. Was the air in the second balloon different from the air in the first balloon? If so, how do you know?

---

3. Why do you think the air was different?

ACTIVITY 11 *(Textbook page 69)*

How can you show how you breathe?

You will need: clear plastic container, clay, plastic straw, small balloon, large balloon, rubber bands, scissors, ice pick

- Use the ice pick to make a hole through the bottom of the container.
- Put the opening of the small balloon over one end of the straw. Wrap a rubber band tightly around the balloon. (This balloon may be thought of as a lung of your body.)
- Push the other end of the straw through the hole in the container as shown.
- Put clay around the hole in the container and the straw. The clay will keep air from escaping.
- Cut the large balloon so that it will stretch across the top of the container. With a rubber band, attach the large balloon to the container. (The large balloon may be thought of as the diaphragm of your body.)
- Pull the "diaphragm" down and then push it up.

What happened to the "lung"? Why?

ACTIVITY 12 *(Textbook page 77)*

How can you show which foods are made up of a large amount of fat?

You will need: small pieces of foods such as bacon, cheese, peanuts, margarine, apple, raisins, pickle, lettuce; brown paper bag

- Spread the bag so that it lies flat.
- Write the name of each food on the bag.
- Rub each piece of food next to its name.
- Hold the bag up to a light. The foods made up of a large amount of fat will leave a greasy spot on the paper.

1. *Which of the foods are made up of a large amount of fat?*
2. *Which are made up of a small amount of fat?*

- Record your answers in the proper space in the chart below.

Foods with a Large Amount of Fat	Foods with a Small Amount of Fat

- Try testing other foods for fat.
- Record your results in the chart above.

ACTIVITY 13 *(Textbook page 79)*

How can you show which foods are made up of a large amount of carbohydrates?

You will need: foods such as bread, potato, macaroni, boiled egg, cheese; iodine; waxed paper; spoon

- Crush each food on the waxed paper with the spoon.
- Put a drop of iodine on each food. Foods with a large amount of carbohydrates will turn blue-black.

1. *Which foods have a large amount of carbohydrates?*
2. *Which have a small amount of carbohydrates?*

- Record your answers in the proper space in the chart below.

Foods with a Large Amount of Carbohydrates	Foods with a Small Amount of Carbohydrates

- Try testing other foods for carbohydrates.
- Record your results in the chart above.

ACTIVITY 14 *(Textbook page 82)*

How can you show which foods are made up of a large amount of minerals?

You will need: foods such as cheese, meat, milk; tin can; hot plate; knife

- Put a small piece of food, such as cheese, into the can.
- Heat the can until the cheese turns to gray ashes. The ashes are minerals from the cheese.
- Heat the other foods.

1. Which of these foods are made up of a large amount of minerals?

2. Which are made up of a small amount of minerals?

- Record your answers in the proper space in the chart below.

Foods with a Large Amount of Minerals	Foods with a Small Amount of Minerals

- Try testing other foods for minerals.
- Record your results in the chart above.

ACTIVITY 15 *(Textbook page 100)*

What are some things you can do with static electricity?

You will need: hard-rubber comb, bits of paper, balloon, woolen sweater, fluorescent bulb, piece of nylon

This activity works best on a day when the air is cool and dry.

- Comb your hair with the hard-rubber comb. Bring the comb toward the bits of paper.

1. What happens to the bits of paper? Why?

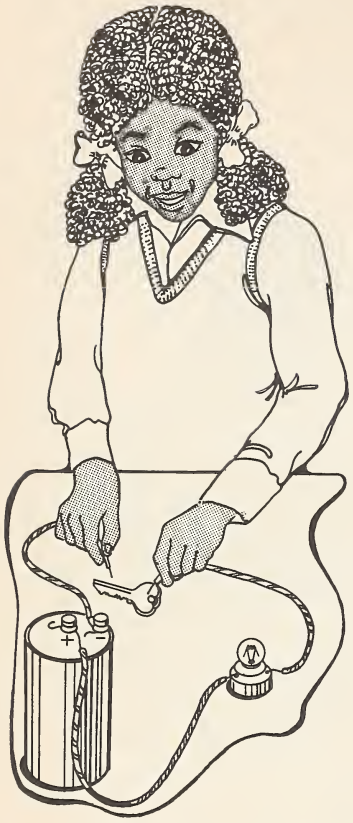
- Rub a blown-up balloon on a woolen sweater. Put the balloon on the wall.

2. What causes the balloon to stick to the wall?

3. What do you think would happen if you didn't rub the balloon on the sweater first? Try it.

● Rub the fluorescent bulb with the piece of nylon.

4. What causes the bulb to light up?



ACTIVITY 16 *(Textbook page 107)*

What are some good conductors of electricity?

You will need: (these things may be found in a hardware store) 1.5-volt battery with posts, flashlight bulb and socket, bell wire; (these things may be found at home) iron nail, key, silver earring or silver dollar, aluminum foil, piece of wood, rubber comb, plastic toy, pencil

- Connect a piece of bell wire from the battery to the bulb socket as shown. Whenever such a connection is made, about 1 cm of rubber must be cut from the end of the wire.
- Connect a piece of bell wire to the other side of the socket.
- Connect a piece of bell wire to the other post of the battery.
- Remove some of the rubber from the free end of each wire. Touch these ends to the key as shown.

1. Does the light bulb light? .....

2. Is the key a good conductor? .....

- Try each of the other things to find out if it is a good conductor.

3. Use the chart below to record the results.

Thing Tested	Good Conductor?
Key	

ACTIVITY 17 *(Textbook page 110)*

How can you show what happens if you add more bulbs to a series circuit?

You will need: 1.5-volt battery with posts, bell wire, 2 bulbs (1.5-volts) and sockets for them

- Cut two pieces of bell wire about 15 cm long and one piece about 8 cm long.
- Connect one 15 cm piece of wire to one battery post and to one side of a socket.
- Connect the other 15 cm piece to the other side of the socket and to the other battery post.
- Screw a bulb into the socket. Notice how brightly the bulb shines. Unscrew the bulb. Add the other socket to the circuit using the 8 cm wire to connect the 2 sockets.
- Screw in one of the bulbs.

1. What happens? Why?

- Screw in the other bulb.

2. What happens now?

3. In which circuit does each bulb shine more brightly? Why?

ACTIVITY 18 *(Textbook page 113)*

How can you show which kind of circuit is better for homes?

You will need: 2 batteries (1.5-volt) with posts, 4 sockets and 1.5-volt bulbs, bell wire

- Set up a battery with 2 light bulbs in a series circuit as shown. Unscrew a bulb until your other setup is ready.
- Set up a battery and 2 sockets connected in parallel as shown.
- Screw in all bulbs.

1. Which circuit gives brighter light?

- Unscrew 1 bulb in the parallel circuit.

2. What happens?

- Unscrew 1 bulb in the series circuit.

3. What happens?

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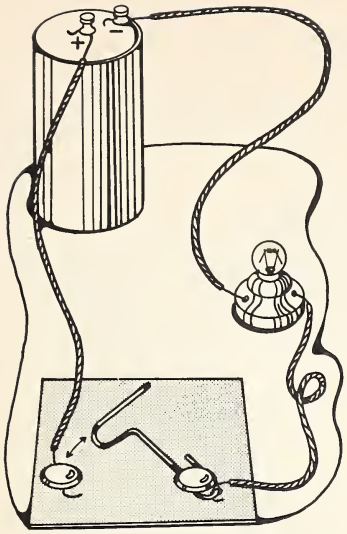
4. Why is a parallel circuit better for homes?



ACTIVITY 19 *(Textbook page 116)*

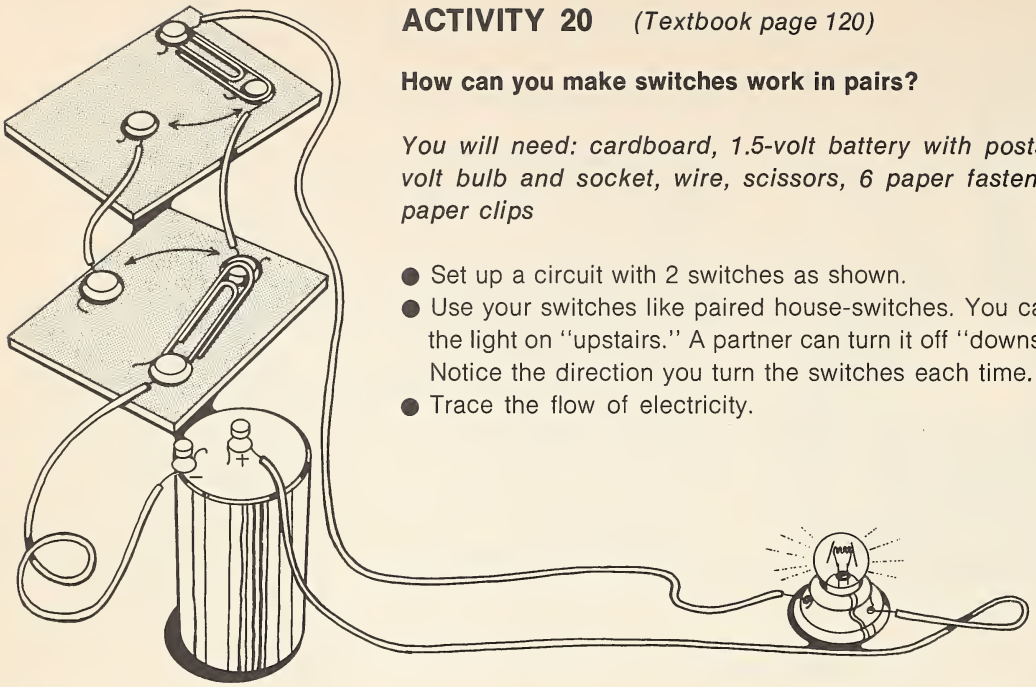
How can you make an electric switch?

You will need: cardboard, scissors, wire, 2 paper fasteners, paper clip, 1.5-volt battery with posts, 1.5-volt bulb and socket

- Bend the paper clip as shown.
- Fasten the paper clip to the cardboard by means of a paper fastener at one end.
- Hook up your switch to a battery and a bulb socket as shown. Screw in the bulb.
- Close the switch.

1. *What happens?*

2. *Explain how your switch works.*



ACTIVITY 20 *(Textbook page 120)*

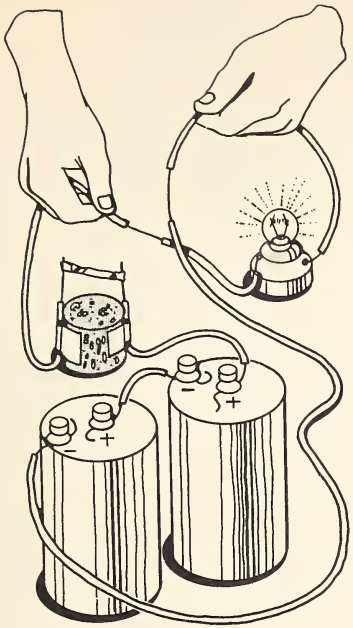
How can you make switches work in pairs?

You will need: cardboard, 1.5-volt battery with posts, 1.5-volt bulb and socket, wire, scissors, 6 paper fasteners, 2 paper clips

- Set up a circuit with 2 switches as shown.
- Use your switches like paired house-switches. You can turn the light on "upstairs." A partner can turn it off "downstairs." Notice the direction you turn the switches each time.
- Trace the flow of electricity.

Explain how your switches work.

ACTIVITY 21 *(Textbook page 122)*



How can you show how a fuse works?

You will need: 2 batteries (1.5-volts) with posts, bell wire, flashlight bulb, socket, cork stopper, thin strip of aluminum foil from a gum wrapper, tape

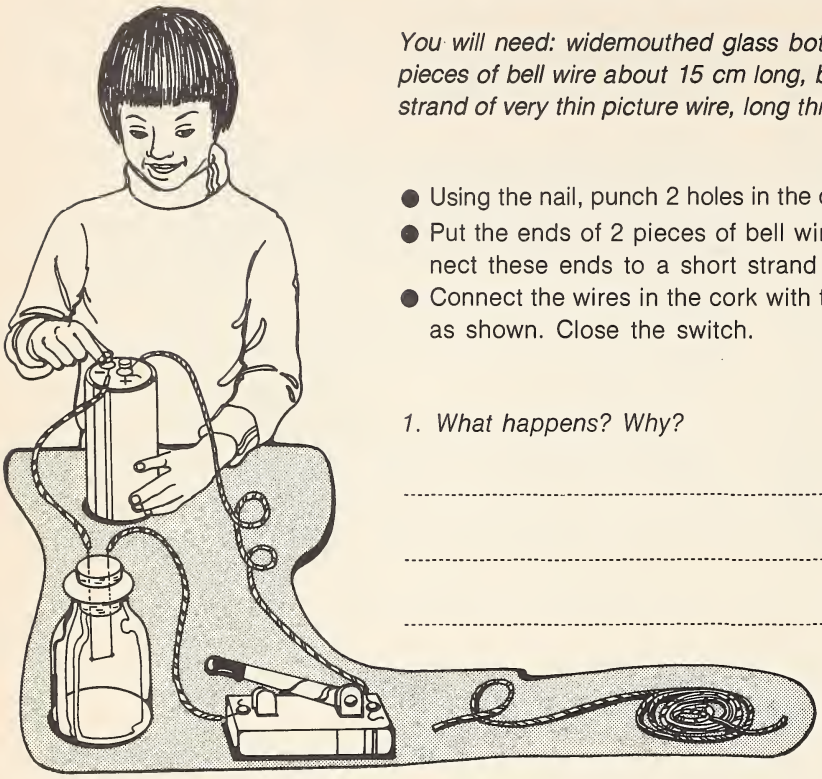
- Make a fuse by taping 2 pieces of wire to the cork as shown. Connect the wires with the aluminum foil.
- Set up the circuit with the fuse as shown.
- Remove some of the rubber from the middle of 2 wires in the circuit.
- Screw the bulb into the socket.
- Now touch the two wires together where you have removed the rubber.

1. What happens to the fuse? Why? (If nothing happens, try making the aluminum foil thinner.)

2. What happens to the light? Why?

ACTIVITY 22 *(Textbook page 129)*

How can you make an electric bulb?



You will need: widemouthed glass bottle, cork for the bottle, 3 pieces of bell wire about 15 cm long, battery with posts, switch, strand of very thin picture wire, long thin nail

- Using the nail, punch 2 holes in the cork about 2 cm apart.
- Put the ends of 2 pieces of bell wire through the cork. Connect these ends to a short strand of picture wire.
- Connect the wires in the cork with the battery and the switch as shown. Close the switch.

1. What happens? Why?

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- Notice how long it takes for the bulb to burn out.

2. How is your "light bulb" like a light bulb in your home?

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3. How is it different?

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ACTIVITY 23 *(Textbook page 130)*

How can you make an electromagnet?

You will need: battery with posts, bell wire, switch, large iron nail, pins

- Wrap a piece of bell wire several times around the nail, leaving the ends of the wire free.
- Connect the wires around the nail with the battery and the switch as shown.
- Close the switch. Bring the nail close to the pins.

1. What happens to the pins?

- Open the switch. Bring the nail close to the pins.

2. What happens to the pins?

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3. When is the nail a magnet?

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4. In what ways might you make your magnet stronger?

- Try to make your magnet stronger.

ACTIVITY 24 *(Textbook page 151)*

How can you show what happens to light when it travels from air into water?

You will need: pencil, drinking glass

- Fill the glass two-thirds full with water.
- Put the glass in front of you on a table.
- Place the pencil in the water. Hold the pencil straight up.
- Look through the glass at the pencil.
- On a sheet of paper, draw what you see.

1. Did the pencil look straight or bent?

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- Lean the pencil against the inside of the glass.
- Look through the glass at the pencil. On a sheet of paper, draw what you see.
- Compare your drawings.

2. Did the pencil look different in each drawing? If so, why?

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- Try moving the pencil to other parts of the glass.

3. How did the pencil look different in other parts of the glass?

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ACTIVITY 25 *(Textbook page 152)*

How can you make a water-drop lens?

You will need: thin piece of wire, large nail, newspaper

- Make a loop around the nail with the wire.
- Dip the wire into some water to catch a drop of water in the loop.
- When you have a drop of water in the loop, hold the wire over the newspaper.
- Look at the newspaper without the loop. Then look through the loop at the newspaper.

1. How did the paper look different through your lens?

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2. What does this tell you about the way a drop of water bends light?

- Try looking at other things through the lens.

3. Other than in your water-drop lens, have you seen water act as a lens? If so, when?

ACTIVITY 26 *(Textbook page 155)*

How is the angle light travels to something like the angle light bounces off it?

You will need: flat mirror, comb, flashlight, cardboard

- Hold the comb as shown.
- Shine the flashlight on the comb so that light travels through the teeth and falls on the cardboard.
- Place the mirror so that it is facing the comb.

1. What happened to the light when it met the mirror?

- Slowly turn the mirror so that it is facing away from the comb.

2. How was the angle the light travelled to the mirror like the angle the light bounced off the mirror?

ACTIVITY 27 *(Textbook page 161)*

How can you make your own prism?

You will need: small, flat mirror; glass of water; white piece of paper

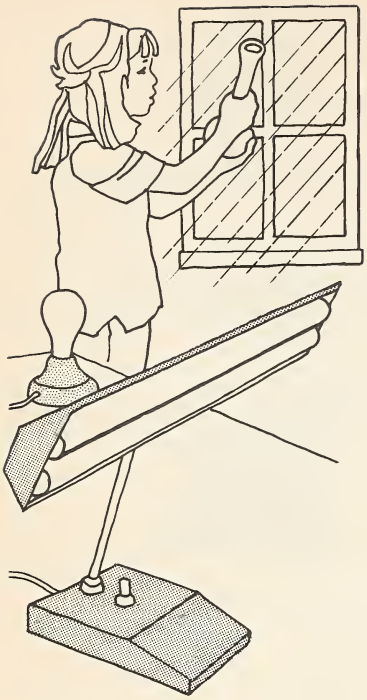
- Place the mirror in the glass of water as pictured.
- Put the glass in the sunlight so that the mirror faces the sun.
- Put the paper at a slant in front of the glass.
- Move the paper until you can see the colours clearly.

1. What colours did you see?

2. Why could you see them?

- Tap the glass lightly.

3. What happened to the colours? Why?



ACTIVITY 28 *(Textbook page 163)*

How are the colours of some things different in different kinds of white light?

You will need: things with a variety of colours, such as clothes and books; incandescent lamp; fluorescent lamp; sunlight

● Look at each thing under each kind of light.

1. Was each colour different under each kind of white light? If so, why?

2. How was each colour different?

ACTIVITY 29 *(Textbook page 167)*

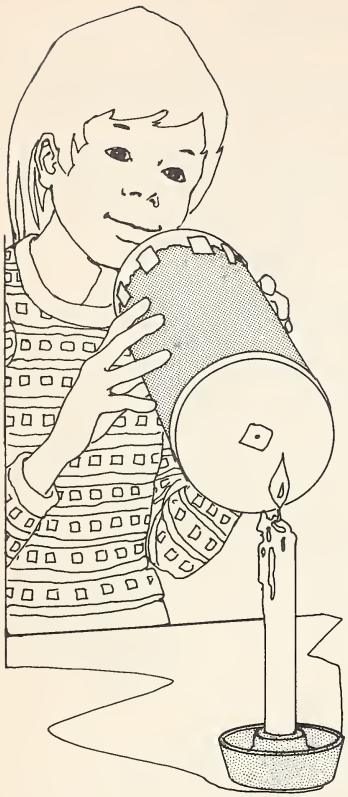
What colour do some things seem to be in coloured light?

You will need: flashlight; piece of green, red, or blue cellophane; tape; variety of colourful things, such as books, marbles, and coloured paper

- Tape the cellophane over the end of the flashlight as pictured.
- In a dark room, shine the flashlight on each thing.
- Have some people write down what colours they see when each thing is shown.
- Then have the people write down what colours they think the things would be in white light.
- Take the cellophane off the flashlight.
- Shine the flashlight on the things.

How many people guessed the colours of each thing?

Object	Colour Under Green Light	Colour Under Red Light	Colour Under Blue Light	Colour Under White Light



ACTIVITY 30 *(Textbook page 171)*

How can you show the way light shines an image on your retina?

You will need: round cereal box, scissors, tissue paper, tape, tinfoil, candle, pin, matches, things such as pencils

- Cut a hole about 3 cm square in the bottom of the box.
- Tape tinfoil over the hole. With the pin, poke a tiny hole in the centre of the foil.
- Tape some tissue paper tightly over the top of the box. Make sure the paper is smooth.
- Light the candle. Place the candle in front of the tiny hole in a dark room as pictured.
- Look at the paper end of the box.

1. What did you see? (It helps to darken the room.)

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2. How does this show how light shines an image on your retina?

- Let light shine through a window in the room.
- Hold the foil end of the box toward the window.
- Then hold things such as pencils in front of the hole.

3. What did you see?

ACTIVITY 31 *(Textbook page 181)*

When is the full moon an optical illusion?

You will need: ruler, paper, pencil

- Look at a full moon when it is low in the sky. Notice where you are standing.
- Hold a ruler at arm's length in front of you. Close one eye. Line the ruler up in front of the moon as shown.
- Look at the ruler. Write down the "size" of the moon.

- Later that night, stand in the same place. Look at the moon when it is high in the sky.

1. Did the moon look the same size as it did when you looked at it before? Why or why not?

- Use the ruler to "measure" the moon as you did earlier.
- Write down the "size" of the moon.

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2. How is a full moon an optical illusion?

ACTIVITY 32 *(Textbook page 197)*

How can you show how waves change the land?

You will need: large pan, small rocks, soil

- Place some rocks in one end of the pan.
- Put some soil on top of the rocks and press the soil down firmly.
- Put something like a book under the end of the pan where the soil is.
- Pour some water into the other end of the pan.
- Use your hand to make some "waves." Splash them onto the soil and rocks.

1. In what way is the "land" being changed?

2. What do you think would happen if you were to make bigger waves? Try it.

ACTIVITY 33 *(Textbook page 199)*

How does acid change some rocks?

You will need: cola, 2 pieces of limestone or 2 seashells, knife

The acid found in cola is the same as the acid found in rain.

- Keep one piece of limestone for later.
- Put one piece of limestone into a glass of cola.
- Listen to and watch what happens to the limestone.

1. What do you hear?

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2. What do you see?

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- Leave the limestone in the cola overnight.
- The next day, remove the limestone from the cola.
- Scrape the surface of the limestone with a knife.
- Then scrape the surface of the other piece of limestone.

3. How are the two pieces of limestone different from each other?

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ACTIVITY 34 *(Textbook page 201)*

How powerful is the force of freezing water?

You will need: empty milk carton, tape

- Fill the carton completely full of water.
- Tightly tape the carton shut.
- Put the carton in a freezer. Leave the carton in the freezer overnight.
- The next day, take the carton out of the freezer.

1. How is the carton changed from when you first put it in the freezer?

2. Do you think you could use the force of freezing water to break rocks apart?

3. How might you do this?

ACTIVITY 35 *(Textbook page 210)*

How can you make "talcum powder"?

You will need: block of talc (from a rock shop or a rock collector), knife, 2 blocks of wood, talcum powder (from a drugstore)

- Shave some talc off the block of talc with a knife.
- Put this talc between the blocks of wood and grind it into a powder.
- Compare your "talcum powder" with the talcum powder from a store.

1. In what ways are they alike? Different?

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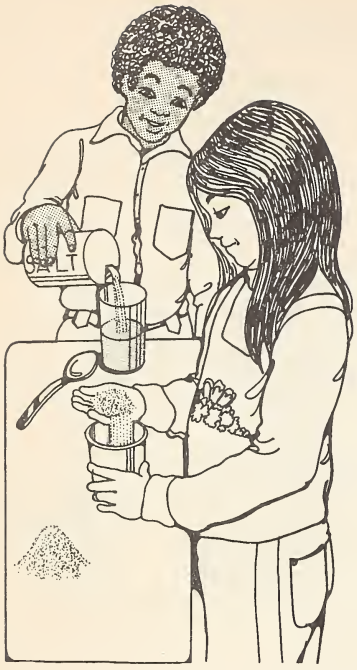
2. What might you do to make your "talcum powder" more like the talcum powder from a store?



ACTIVITY 36 *(Textbook page 212)*

How can you make "sandstone"?

You will need: paper cup, salt, spoon, sand, piece of sandstone

- Fill a paper cup half full of sand.
- Pour some salt into half a glass of water and stir.
- Keep adding salt until it no longer dissolves.
- Pour the salt water into the paper cup. Mix the sand and salt water together. Let the contents of the paper cup settle for about 10 minutes.
- After about 10 minutes, carefully pour off most of the water in the cup. Cut off the top of the cup and let the contents dry for 3 or 4 days.
- After 3 or 4 days, cut open the paper cup and carefully remove the dried "sandstone." Put the "sandstone" on a piece of paper and let it dry for another day.
- Compare your "sandstone" with the piece of real sandstone.

1. In what ways is your "sandstone" like real sandstone? In what ways is it different?

2. Would putting pressure on your piece of "sandstone" while it dried make a difference in the hardness of your "sandstone"? Why or why not?

ACTIVITY 37 *(Textbook page 225)*

What are some things you can find in soil?

You will need: lawn or garden soil, paper, magnifying glass

- Place a small amount of soil on some paper.
- Spread out the soil.

1. What animals or animal parts do you find?

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2. What plant or plant parts do you find?

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3. Are there any pieces of rock in the soil? If so, are they all the same size or are there different sizes?

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- Now look at the soil through a magnifying glass.

4. What other things do you find in the soil?

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ACTIVITY 38 *(Textbook page 229)*

How can you find out whether the soils around you are basic, acidic, or neutral?

You will need: purple cabbage, dark-coloured soil, light-coloured soil, 2 jars with lids, strainer, 2 small glass jars, pan with lid, distilled water (from a grocery store), spoon

Although litmus paper is often used to test soil chemicals, purple-cabbage juice can also be used. Purple-cabbage juice will turn shades of red when an acid is added to it. The juice will turn shades of blue or green when a base is added to it. The juice will not change colour when something which is neutral is added to it.

- Break up some pieces of purple cabbage and put them in a pan. Cover the cabbage with distilled water.
- Put a lid on the pan and cook the cabbage for 15 minutes.
- Strain off the juice.
- Put some dark-coloured soil in one jar with a lid.
- Put some light-coloured soil in another jar with a lid.
- Fill both jars with distilled water, cap them, and shake.
- Let the soil settle in each jar for a few minutes.
- Put a few drops of the purple-cabbage juice into each small glass jar. Add a few drops of water from the dark-coloured soil jar to one of the small jars. Add a few drops of water from the light-coloured soil jar to the other small jar.

1. Are your soils basic, acidic, or neutral?

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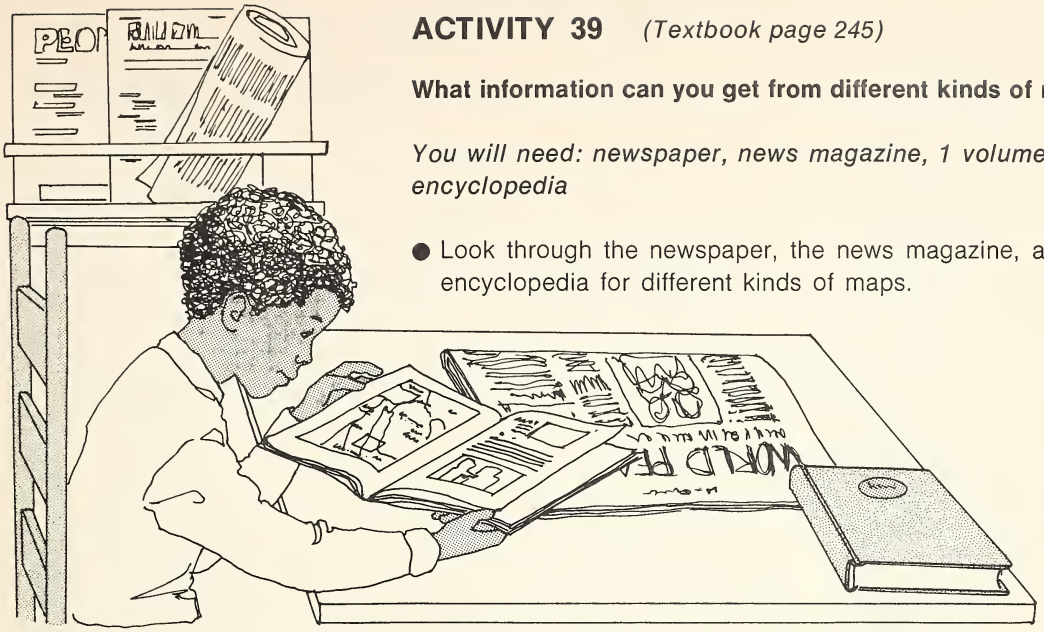
2. Would either of these soils be good for growing plants in? Why or why not?



ACTIVITY 39 *(Textbook page 245)*

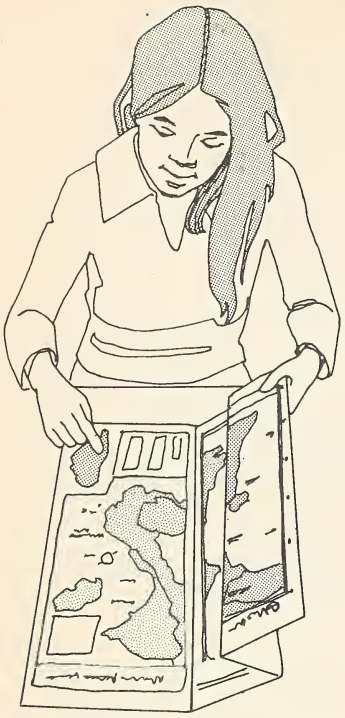
What information can you get from different kinds of maps?

You will need: newspaper, news magazine, 1 volume of an encyclopedia

- Look through the newspaper, the news magazine, and the encyclopedia for different kinds of maps.

1. How many different kinds of maps did you find?

2. What information did each kind of map give you? How might this information help people?



ACTIVITY 40 *(Textbook page 248)*

What are some different symbols you can find on maps?

You will need: provincial road map, city map

- Look at the maps carefully. Look for some symbols that are the same on both maps.
- Look for some symbols that are used on one map but not on the other map.

1. Are there some symbols that are the same on both maps? If so, what are some of these symbols?

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2. Are there some symbols that are used on one map but not on the other map? If so, what are some of these symbols?

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3. Why do you think different symbols are often used on different maps?

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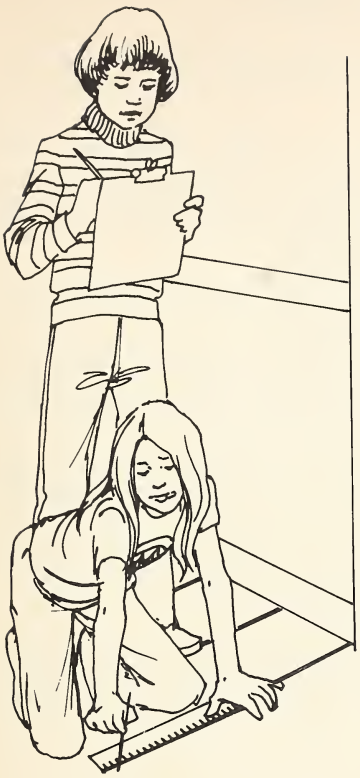


ACTIVITY 41 *(Textbook page 251)*

How can you make a map of your classroom?

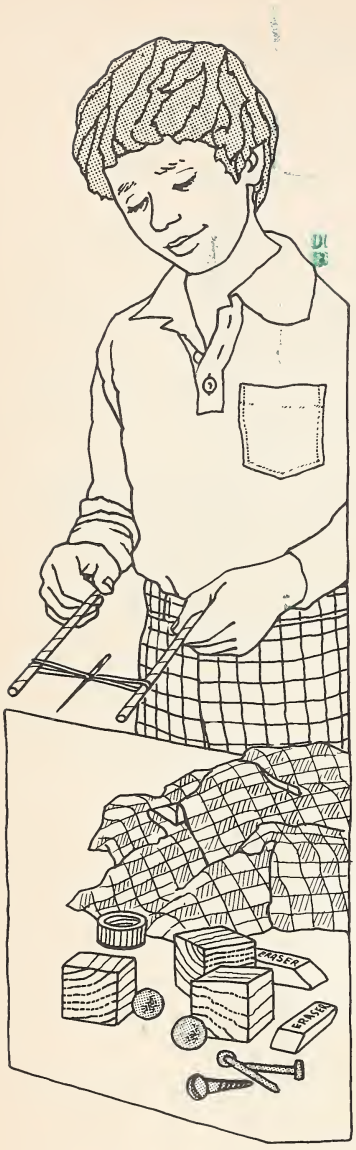
You will need: paper, pencil, measuring stick

- Measure the length and the width of your classroom.
- Write down the measurements.
- Choose a scale, and draw a map of your classroom to scale. Be sure to write on your map the scale you are using.
- Measure your teacher's desk, any tables, and your desk. Draw these things on your map to scale.

1. What other things in your classroom might you put on your map? What would you need to do to draw these things to scale on your map?

- Compare your map with the maps made by others in your class.

2. Do all your maps look the same? Why or why not?



ACTIVITY 42 *(Textbook page 262)*

How can you use a needle to find "deposits" of magnetic minerals?

You will need: 2 soda straws, thin rubber band, glue, bar magnet, needle, piece of cloth about 1 m square, small metallic objects such as paper clips and nails, small nonmetallic objects such as wood blocks and pencil erasers

- Rub the needle across one end of the magnet about 35 times. Be sure to rub in only one direction.
- Check to see if your needle is now a magnet by seeing if it will pick up a paper clip. If the needle will not, rub it across the end of the magnet a few more times.
- Glue your magnetized needle to the middle of the rubber band as shown. Glue the rubber band to the soda straws as shown.
- Place the objects on a wood table. Place some of them in a pile. Place others by themselves.
- Cover the objects with the cloth.
- Have someone who did not see where you put the objects move the magnetic needle across the top of the cloth. Watch the needle carefully.

1. Did your partner find any "deposits" of magnetic minerals? If so, what did the needle do to tell you this?

● Have your partner rearrange the "deposits." Do not watch as this is done. Try finding the "deposits" by using the magnetic needle.

2. How would the movements of the needle be helpful in making a map of the "deposits"? Try making such a map.

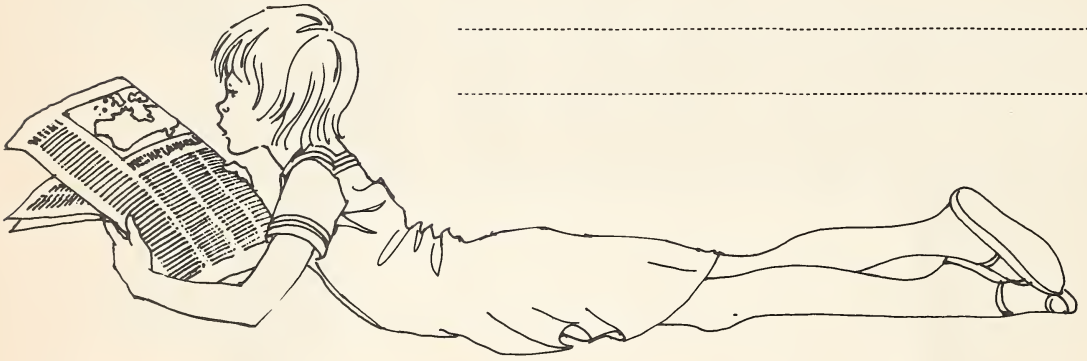
ACTIVITY 43 *(Textbook page 265)*

What things can you learn from a newspaper weather map?

You will need: newspaper

- Find a weather map in your newspaper.
- Look at the symbols used on this map.

1. What kinds of information does the map give you?



2. How might you use this information to plan activities?

3. How might you use this information to choose the clothing you would need for the day?

Name_____

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